N60201.AR.000629
NS MAYPORT
5090.3a

LETTER REPORT REGARDING SOURCE REMOVAL REPORT FOR BUILDING 365 UNDERGROUND STORAGE TANK NS MAYPORT FL

11/26/2002

TETRA TECH NUS

TETRA TECH NUS, INC.
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Document Number 02JAX0209

November 26, 2002

Project Number N2814

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Beverly Washington (Code ES24)
Remedial Project Manager
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: Clean Contract Number N62467-94-D-0888
Contract Task Order Number 0176

Subject: Source Removal Report, Tank Site 365
Naval Station Mayport
Mayport, Florida

Dear Ms. Washington:

Tetra Tech NUS, Inc. (TtNUS) is pleased to present the Source Removal Report for the Building 365 Underground Storage Tank (UST) site at Naval Station (NS) Mayport, in Mayport, Florida. This Source Removal Report has been prepared to document the excavation and disposal of petroleum-impacted soils at Building 365. For source removal action, TtNUS excavated soil that exceeded the Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Levels (SCTLs) for residential direct exposure. The extent of impacted soil was limited, allowing for source removal instead of the preparation of a Remedial Action Plan (RAP) as agreed by the NS Mayport Partnering Team. This Source Removal Report provides an explanation of the excavation, sampling, and disposal activities performed at Tank Site 365. This work was performed under Contract Task Order 0176 in accordance with Contract Number N62467-94-D-0888.

SITE BACKGROUND

Building 365, the NS Mayport Fire Station, is located on the north central portion of NS Mayport as shown on Figure 1 in Attachment A. The building was the former location of a 500-gallon fuel oil UST, which was removed from service via excavation in April 1995. A historical document showing the location of the former UST is provided in Attachment B. During tank removal activities, both soil and groundwater contamination was encountered. Excessively contaminated soil, as defined by the Chapter 62-777, Florida Administrative Code (FAC), was noted in one organic vapor analyzer (OVA) screened closure sample at 190 parts per million (ppm) in the north wall of the excavation at a depth of 5 feet (ft) below land surface (bls). A sample from the west wall of the excavation was analyzed by an OVA and found to contain 40 ppm at a depth of 5 ft bls. Groundwater from a well installed in the center of the excavation was tested and initially found to contain 10 micrograms per liter (µg/l) of benzene, exceeding the FDEP Groundwater Cleanup Target Level (GCTL) of 1 µg/L. Other constituents detected included ethylbenzene, toluene, and xylene at levels that did not exceed GCTL values.

In 1998, Bhate Environmental Associates, Inc. (Bhate) conducted a Contamination Assessment Report (CAR). The results of the CAR indicated that impacted soil above regulatory thresholds was apparently restricted to east of the former UST. Groundwater sampling results indicated no organic constituents were detected.

In 1999, Bhate conducted additional site investigation activities to address deficiencies in the CAR outlined in a letter by FDEP dated June 15, 1998. The results of this work are documented in the CAR Addendum (CARA) dated September 10, 1999. The additional work included the installation of an additional well, additional soil borings, and the analysis of soil and groundwater samples. The results of the additional assessment confirmed the presence of impacted soils, but found only one location where FDEP residential direct exposure or groundwater leachability SCTLs were exceeded. This location is east of the former tank pit at soil boring S-3 (3 ft bls) where total recoverable petroleum hydrocarbons (TRPHs) were detected at 8480 milligrams per kilogram (mg/kg). The locations and analytical results of soil borings performed during the CARA are indicated on the historical document found in Attachment B.

Groundwater samples were collected from six monitoring wells during the CARA and analyzed for TRPH and total lead. One well, MW-6, was also analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl-tertiary-butyl-ether (MTBE); ethylene dibromide (EDB); polynuclear aromatic hydrocarbons (PAHs); naphthalene; 1,2-dichloroethane; and listed priority pollutant volatile organic halocarbons (VOHs). TRPH was not detected in any of the six wells sampled, and all other groundwater samples were either below FDEP GCTLs or laboratory detection limits.

Based on a review of the CAR and CARA, FDEP issued a letter dated September 29, 1999 requesting a RAP be prepared to address contaminated soils.

REGULATORY DISCUSSIONS

TtNUS presented the results of the prior assessment activities to the NS Mayport Partnering Team on October 10, 2001 for the purpose of obtaining consensus as to appropriate follow-up actions. Since impacted soil above residential SCTLs at the site is restricted to a single boring, TtNUS prepared a Soil Excavation Plan as an alternative to the preparation of a Remedial Action Plan (RAP). A consensus was reached that approved a limited excavation be conducted at the location of soil boring S-3. Soil screening methods via OVA were conducted to guide the excavation and collection of verification samples. Due to the location of sensitive utilities at Building 365, it was determined that hand digging methods would be warranted.

PROJECT OBJECTIVES

The objective of this source removal was to excavate and properly dispose of the contaminated soil that had been previously discovered on site near soil boring S-3. The excavated soil was to be tested for TRPH to determine if further excavation was necessary. The Source Removal Activities were conducted in accordance with the Soil Excavation Plan dated December 11, 2001.

SOURCE REMOVAL ACTIVITIES

Site Preparation

In preparation for excavation, caution tape was set up around the site. Also, exclusion, contamination, and support or safety zones were established in the area. A health and safety meeting was held and the area assessed by field personnel. All aboveground and underground utilities and other man made structures were noted prior to excavation. A photograph of the site prior to excavation is included as Photograph 1 in Attachment C.

Soil Excavation

The source removal effort began on June 3, 2002 near soil boring S-3 and resulted in the excavation of approximately 10 cubic yards (yd^3) of contaminated soil. The soil was excavated to a depth of 4 ft bls to ensure that potentially contaminated soil was removed from the site. The soil was excavated using hand digging methods that utilized hand shovels to avoid penetrating or severing existing pipes, wires, and other buried structures. The soil was then transferred from the excavation to a lined roll-off on site via heavy equipment where it awaited characterization and disposal by Gateway Disposal.

During excavation activities, several underground structures were discovered. Among these discoveries were two telephone lines, a sewer manhole with incoming sewer lines, a conduit containing electrical lines, and one electrical line with no conduit surrounding it. There was a slight petroleum odor detected in the soil excavated until a depth of 3 ft was reached. The soil was a fine to very fine, grained sand fill to 3.5 ft. Native soil was encountered below 3.5 ft and was light brown in color.

During excavation activities, the soil was observed for evidence of petroleum contamination and screened with an OVA to determine the extent of the contamination. The excavated soils were stored in a lined roll-off provided by Gateway Disposal Services near the excavation pit and covered with a polyethylene sheet in a manner to avoid contact with rain water. The soil was then characterized and disposed of based on a developed waste profile.

The final area of excavation was rectangular in shape measuring 10 ft from north to south and 6.5 ft from east to west. The maximum depth of the excavation was 4 ft. The entire removal effort generated a total of approximately 10 yd^3 of contaminated soil for disposal offsite. Photograph 2 in Attachment C shows the excavation area after all of the soil was removed. The pipes, conduits, and partial sewer manhole are exposed.

Soil Disposal

After the characterization sampling was completed, the roll-off containing the contaminated soil was picked up by Gateway Disposal Services and transported to Nassau County Landfill for Disposal. A non-hazardous disposal manifest with appropriate signatures is provided in Attachment D. Sampling results are provided in Table B-1 in Attachment E and in Attachment F.

Backfilling and Site Restoration

After determination that impacted soils exceeding FDEP SCTL values had been removed, backfill material was brought on site to be used to fill the excavated area. The material used to backfill the excavation was clean and uncontaminated as certified by Dynamic Land Development. The soil was then compacted to prevent settling of the structures surrounding the site. The soil was compacted using a plate compactor, and the area was leveled and prepared for reseeding. Following the removal of the contaminated material, backfilling, and compaction of backfilled material, the area was re-seeded using a purchased seed mix consisting of Bahia grass and Rye. The re-seeded area was then sufficiently watered to allow for vegetation re-growth. Attachment C contains photographs of the site after the excavation had been backfilled with clean fill. Photographs 3, 4, and 5 show various views of the site after being regraded.

SAMPLING AND ANALYSIS RESULTS

Sampling of Soil

Prior to backfilling and site restoration, samples were taken from the sidewalls and bottom of the excavation pit at five locations (S11, S12, S13, S14, and S15) shown on Figure 2 in Attachment A.

Sample number MPT-365-S11-04 was taken from the northern wall of the excavation at a depth of 3 to 4 ft bls.

Sample number MPT-365-S12-04 was taken from the western wall of the excavation at a depth of 3 to 4 ft bls.

Sample number MPT-365-S13-04 was taken from the southern wall of the excavation at a depth of 3 to 4 ft bls.

Sample number MPT-365-S14-04 was taken from the eastern wall of the excavation at a depth of 3 to 4 ft bls.

Sample number MPT-365-S15-04 was taken from the center of the floor of the excavated area at a depth of 3 to 4 ft bls.

All samples were taken using stainless steel hand tools and samplers, which were pre–cleaned. The samples were homogenized, placed into laboratory-supplied sample containers, labeled according to their location, sealed in re-sealing bags, and placed on ice for transport. The samples were shipped to Severn Trent Laboratories-Pensacola Laboratories via Federal Express to be analyzed for TRPH using the Florida-Pro method.

Analysis of Soil Samples

The results of the laboratory tests are shown in Table B-2 in Attachment E. Figure 3 in Attachment A shows soil sample locations along with analytical results. As shown, none of the samples exceeded the residential exposure or groundwater leachability SCTLs for TRPH. The laboratory report is provided in Attachment F.

CONCLUSIONS AND RECOMMENDATIONS

Source removal efforts conducted near Building 365 generated 10 yd^3 of petroleum-impacted soil that has since been disposed of off site. The soil was excavated to a depth of 4 ft bls, and samples were taken from each of the side walls and from the bottom of the excavation pit to ensure the removal of impacted soil above FDEP SCTL values.

The results of the laboratory analysis confirmed that petroleum contaminated soil above the SCTLs has been removed from the site. The soil was properly removed and disposed of in accordance with the Soil Excavation Plan.

Groundwater was sampled during the CAR and CARA for petroleum constituents in accordance with Chapter 62-770, FAC, at six monitoring wells. TRPH was not detected in groundwater and no other constituents exceeded GCTLs.

Site restoration included backfilling with a clean soil and then re-seeding using Bahia grass and Rye, returning the site to its original grade.

Based on the results of the source removal effort and prior contamination assessments, we recommend no further action and a site rehabilitation order be approved for the site.

TtNUS appreciates the opportunity to provide you with these services. If you have any questions or require additional information, please contact me at (904) 636-6125.

Sincerely,

Mark A. Peterson

Mark Peterson, P.G.
Task Order Manager

MAP/mf

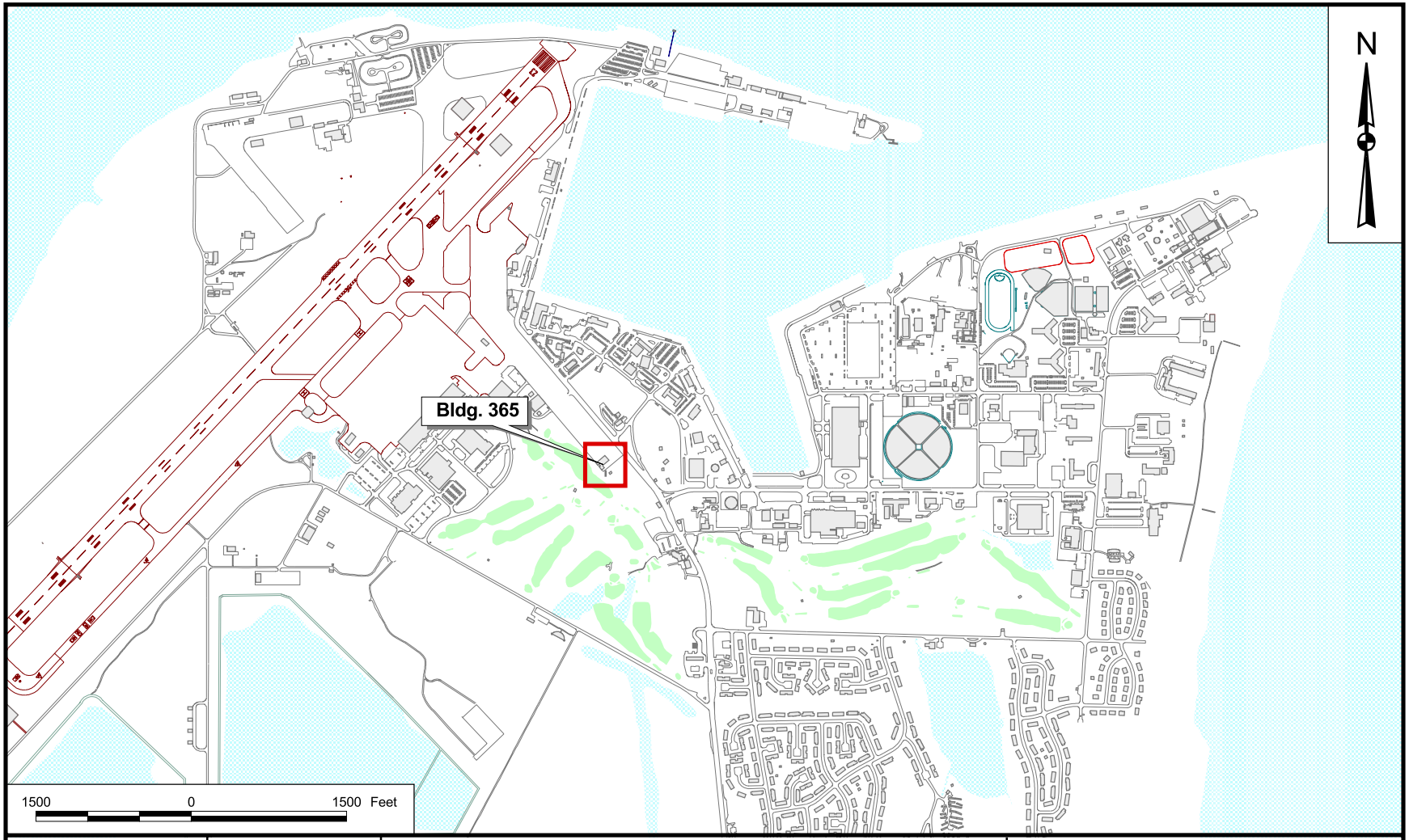
Enclosures

pc: Mr. J. Bovier, NS Mayport
Ms. D. Wroblewski, TtNUS (w/o enclosures)
Mr. M. Perry, TtNUS (unbound)
Project Office File

ATTACHMENT A

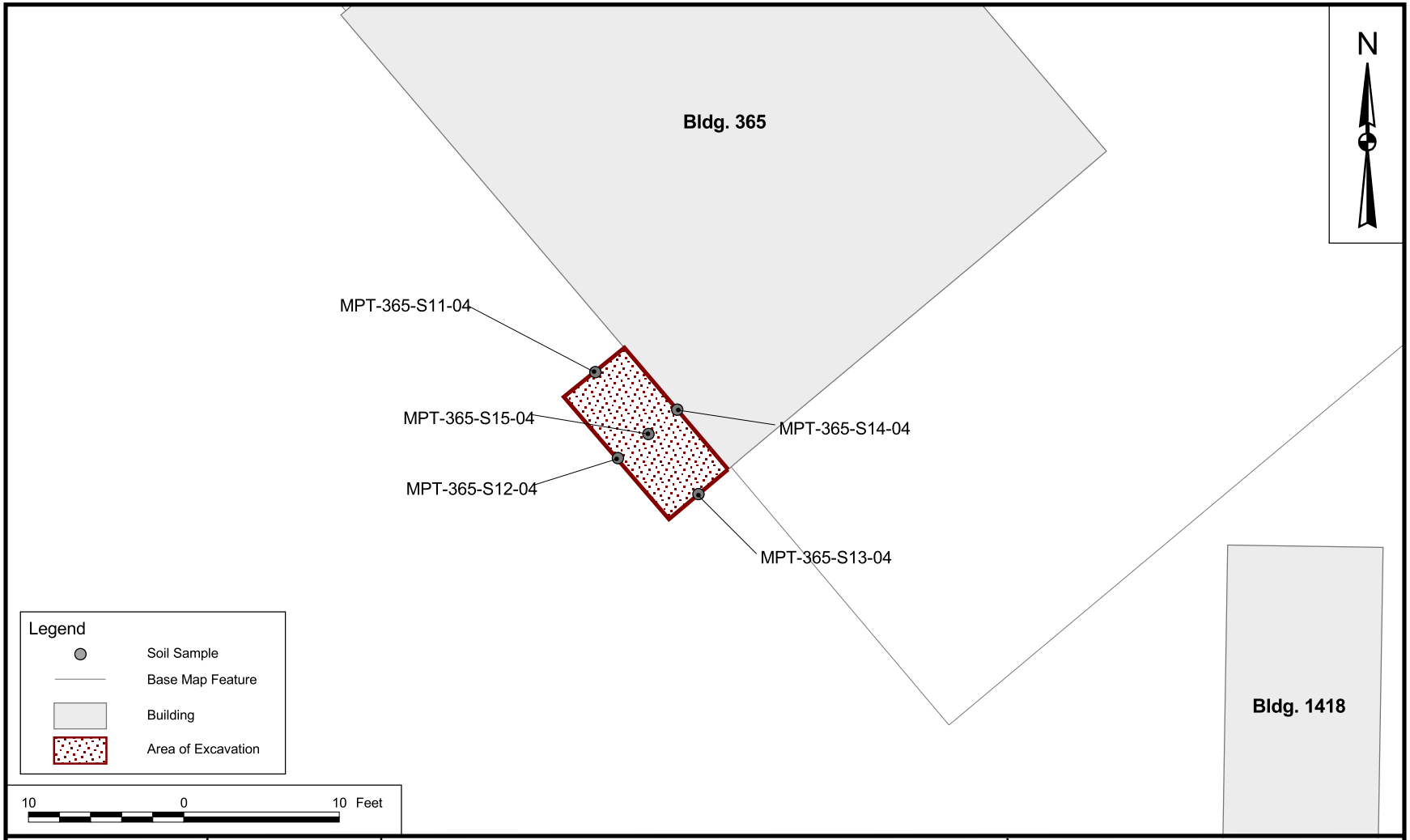
FIGURES

Site Location Map	Figure 1
Site Plan Showing Area of Excavation and Sample Locations	Figure 2
Soil Analytical Results	Figure 3



DRAWN BY: A. JANOCHA	DATE: 7/19/02	SITE LOCATION MAP U.S. NAVAL STATION MAYPORT, FLORIDA	CONTRACT NUMBER: 2814
CHECKED BY: M. FERGUSON	DATE: 7/23/02		APPROVED BY: — DATE: —
COST/SCHEDULE-AREA			APPROVED BY: — DATE: —
SCALE: AS NOTED			DRAWING NO.: FIGURE 1 REV: 0

P:\GIS\MAYPORT_NS\APR\0123.APR SITE LOCATION MAP - BUILDING 365 LAYOUT 7/23/02 AJ

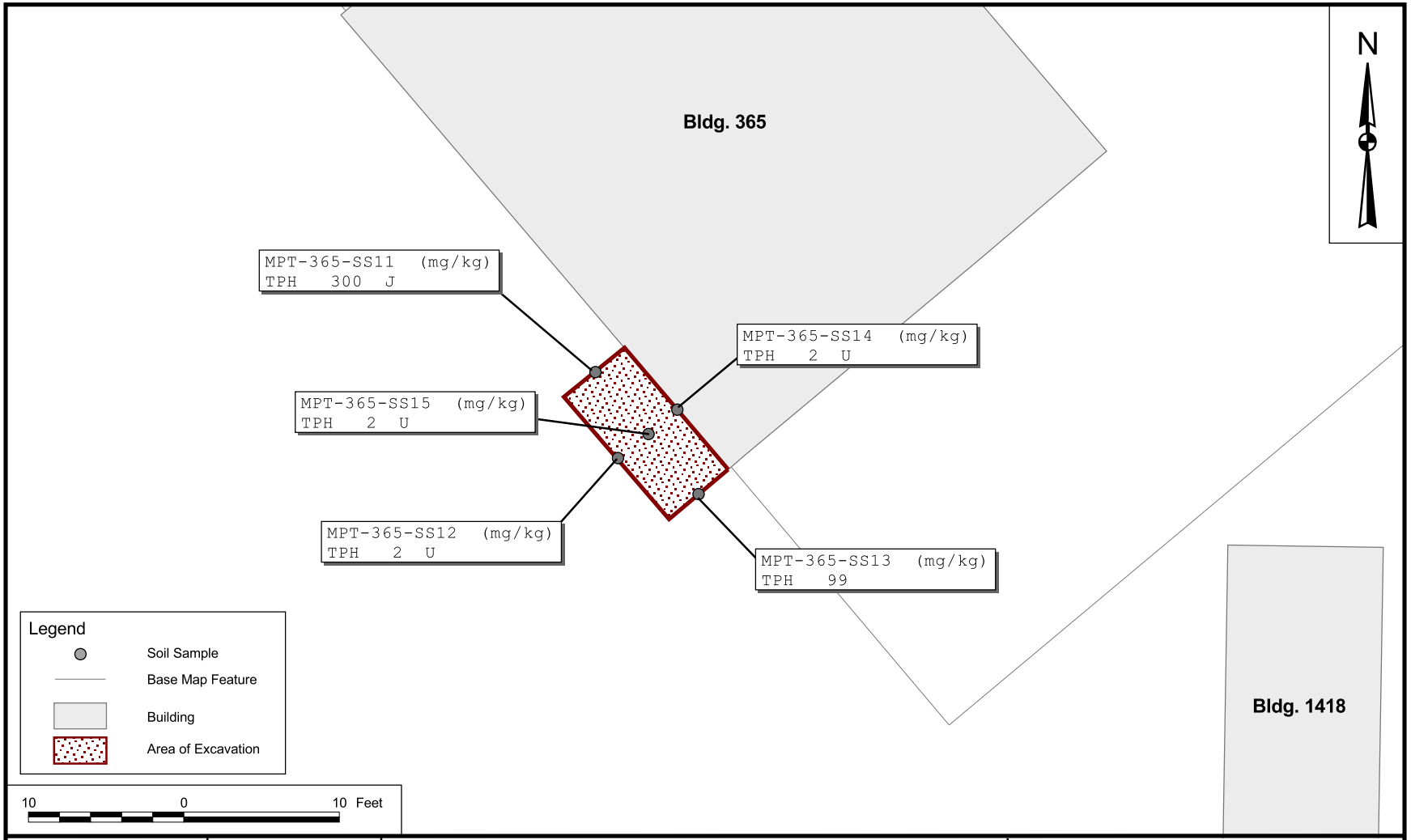


DRAWN BY: A. JANOCHA	DATE: 7/19/02
CHECKED BY: M. FERGUSON	DATE: 7/23/02
COST/SCHEDULE-AREA	
SCALE: AS NOTED	

SITE PLAN SHOWING AREA OF EXCAVATION AND SAMPLE LOCATIONS
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NUMBER: 2814	
APPROVED BY: —	DATE: —
APPROVED BY: —	DATE: —
DRAWING NO.: FIGURE 2	REV: 0

P:\GIS\MAYPORT_NS\APR\0123.APR SITE PLAN SHOWING AREA OF EXCAVATION AND SAMPLE LOCATIONS LAYOUT 8/15/02 AJ

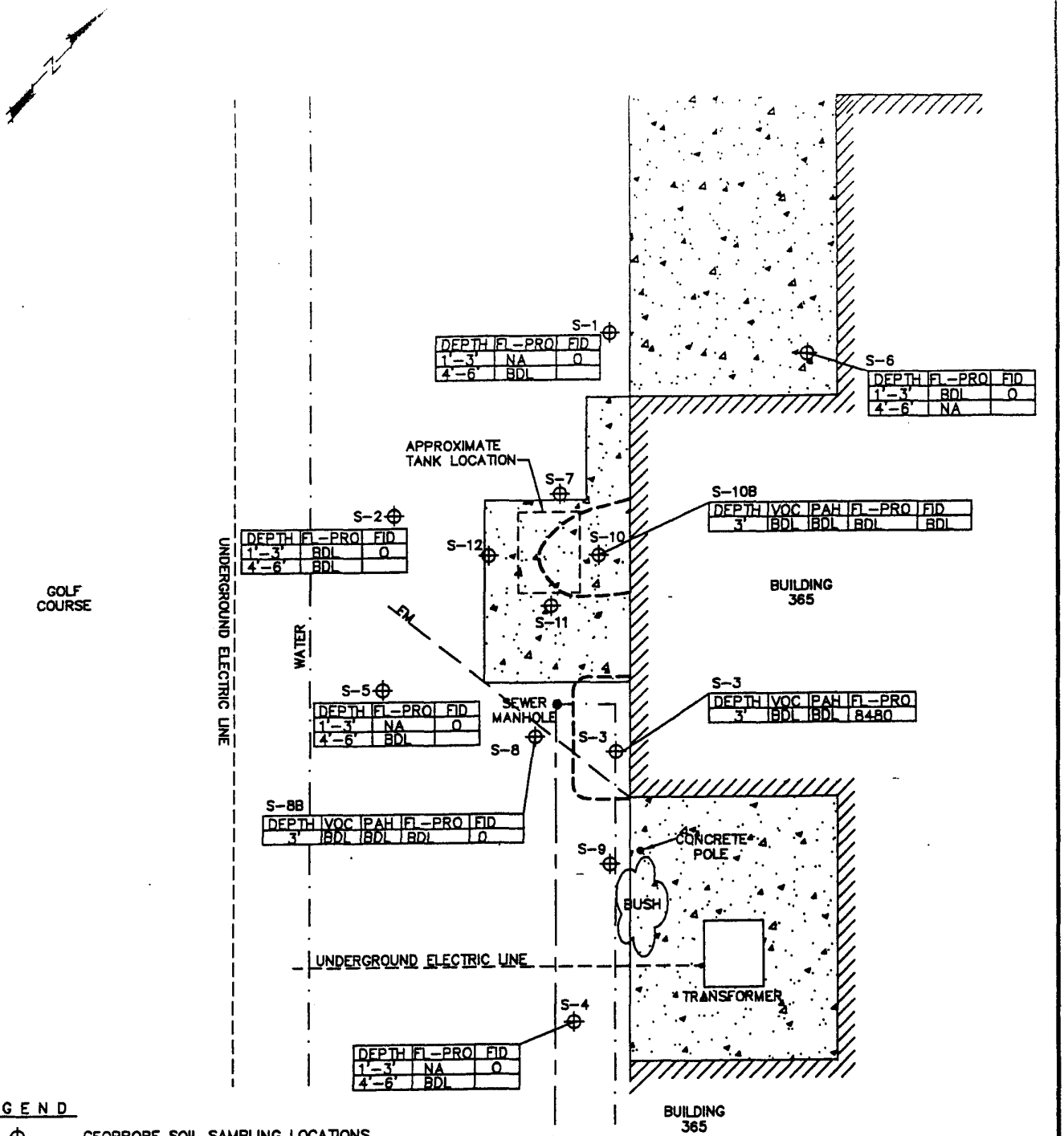


DRAWN BY A. JANOCHA	DATE 7/19/02	SOIL ANALYTICAL RESULTS U.S. NAVAL STATION MAYPORT, FLORIDA	CONTRACT NUMBER 2814
CHECKED BY M. FERGUSON	DATE 7/23/02		APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 3 / REV 0

P:\GIS\MAYPORT_NS\APR\0123.APR SOIL ANALYTICAL RESULTS LAYOUT 8/15/02 AJ

ATTACHMENT B

HISTORICAL DOCUMENT



LEGEND

⊕	GEOPROBE SOIL SAMPLING LOCATIONS
FL-PRO	FLORIDA PETROLEUM RESIDUAL ORGANICS IN PARTS PER MILLION
FID	FLAME IONIZATION DETECTOR IN PARTS PER MILLION
BDL	BELOW DETECTION LIMIT
NA	NOT ANALYZED
- - - - -	APPROXIMATE EXTENT OF EXCESS SOIL CONTAMINATION

0' 5' 10'

GRAPHIC SCALE
1" = 10'

NOTE:
The information shown on this map was obtained in part from investigations by others. This information is depicted to provide visual aid within the context of this plan and should not be used as a sole reference in precise dimensioning of features indicated.

BEA
Bhate Environmental Associates, Inc.
Environmental Engineers & Scientists

SOIL ANALYTICAL RESULTS

PROJECT NO.	SCALE	DATE	DRAWN BY:
	1"=10'	9/8/97	DRAWING NO: FIG8A

Contamination Assessment Report
UST 365

Naval Station Mayport
Mayport, Florida

Figure 3

ATTACHMENT C

PHOTOGRAPHS

Photograph 1. June 3, 2002. Photograph of Building 365 Site before Excavation activities began.

Photograph 2. June 3, 2002. Photograph of excavation pit showing exposed utilities

Photograph 3. June 3, 2002. Photo of excavation pit following backfilling.

Photograph 4. June 3, 2002. Photograph of excavation site following waste disposal, backfilling, and regrading. (View 1)

Photograph 5. June 3, 2002 . Photograph of excavation site following waste disposal, backfilling, and regrading. (View 2)

ATTACHMENT D

DISPOSAL MANIFESTS

Non-Hazardous Waste Manifest

Generator's Name and Mailing Address
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29418

Generator's Phone: (843) 820-5555

Transporter (Company Name) | **Phone:**
Gateway Disposal Services | 904-783-7000
Contact: Tammy Wilson

Designated Facility Name and Site Address | **Phone:**
Nassau County Landfill | 904-879-6321
440 South Kings Rd
Callahan, FL 32011

Waste Shipping Name and Description:	Container	Total Quantity
a. Non-Regulated Material (Sol) RCRA and D.O.T. Non-Hazardous	Roll-off	15 yd³

Printed Generator's Signature: Mark Petersen (Tetra Tech NUS Inc.) | **Signature/Date:** 7/16/02

Printed Transporter Acknowledgement of Receipt: Gateway Disposal Services – Tammy Wilson | **Signature/Date:**

Discrepancy Indication Space:

Facility Owner/Operator: Certification of receipt of waste materials covered by this manifest.
Nassau County Solid Waste Dept.

Printed Name: | **Signature/Date:**
Robert McIntyre 18 July 02

BOARD OF COUNTY COMMISSIONERS
PO BOX 4000
FERNANDINA BEACH,FL 32035-4000

Tetra Tech 24192

000049 GATEWAY DISPOSAL SERVICES
9798 NORMANDY BLVD
JACKSONVILLE FL 32221

SITE	TICKET	GRID	WEIGHMASTER
02	190860	F, 7 -20	JENNY

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
07/10/02	07/10/02	09:16	09:45		

REFERENCE	ORIGIN
GTWY 213	TETRA TECH NUS.

Scale 1 Gross Wt.	45060	LB	Inbound - Charge ticket
Scale 2 Tare Wt.	30860	LB	
Net Weight	14200	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
7.10	TON	GATEWAY DISPOSAL SRV				

NORMAL HOURS 6:00AM- 5:00PM
CLOSED SUNDAYS

Tetra Tech NUS
Task # 13017

SIGNATURE Walt Arnold

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

ATTACHMENT E

ANALYTICAL RESULTS

Summary of TCLP Detected in Characteristic Soil Sample	Table E-1
Summary of TRPH Detected in Soil Samples	Table E-2

Table E-1. Summary of TCLP Detected in Characteristic Soil Sample
Excavation near Building 365
Naval Station Mayport
Mayport, Florida

Sample MPT-365-IDW

Parameter	Result (mg/L)
Arsenic	0.25
Cadmium	0.25
Chromium	0.25
Lead	0.25

Table E-2. Summary of TRPH Detected in Soil Samples

Excavation near Building 365

Naval Station Mayport

Mayport, Florida

Sample Number		**MPT-365-S11-04**	**MPT-365-S12-04**	**MPT-365-S13-04**	**MPT-365-S14-04**	**MPT-365-S15-04**
Date		**6/4/2002**	**6/4/2002**	**6/4/2002**	**6/4/2002**	**6/4/2002**
Sample Depth	bls	4	4	4	4	4
Parameter	**SCTL**					
FL-PRO Method						
TRPH (mg/kg)	340	300 J	2 U	99	2 U	2 U

Note: SCTLs refer to Residential Direct Exposure and Groundwater Leachability Criteria

SCTL = Soil Cleanup Target Levels, as specified in Chapter 62-777, Florida Administrative Code

mg/kg = milligrams per kilogram

bls = below land surface

U = Undetected by testing equipment

TRPH = Total Reportable Petroleum Hydrocarbons

ATTACHMENT F

LABORATORY RESULTS

PROJ_NO: 2814

SDG: 6096 MEDIA: SOIL DATA FRACTION: PET

nsample	MPT-365-S11-04
samp_date	6/4/2002
lab_id	C206096*5
qc_type	NM
units	MG/KG
Pct_Solids	96
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	300	J	R

nsample	MPT-365-S12-04
samp_date	6/4/2002
lab_id	C206096*4
qc_type	NM
units	MG/KG
Pct_Solids	86
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	2	U	

nsample	MPT-365-S13-04
samp_date	6/4/2002
lab_id	C206096*3
qc_type	NM
units	MG/KG
Pct_Solids	94
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	99		

PROJ_NO: 2814

SDG: 6096 MEDIA: SOIL DATA FRACTION: PET

nsample	MPT-365-S14-04
samp_date	6/4/2002
lab_id	C206096*2
qc_type	NM
units	MG/KG
Pct_Solids	90
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	2	U	

nsample	MPT-365-S15-04
samp_date	6/4/2002
lab_id	C206096*1
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	2	U	

PROJ_NO: 2814

SDG: 6183 MEDIA: SOIL DATA FRACTION: M

nsample	MPT-365-IDW
samp_date	6/6/2002
lab_id	C206183*1
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
ARSENIC	1.3		
CADMIUM	0.46	U	
CHROMIUM	5.3		
LEAD	100		

PROJ_NO: 2814

SDG: 6183 MEDIA: TCLP DATA FRACTION: TCLPM

nsample	MPT-365-IDW
samp_date	6/6/2002
lab_id	C206183A*1
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ARSENIC	0.025	U	
CADMIUM	0.025	U	
CHROMIUM	0.025	U	
LEAD	0.062		

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06096
Received: 05 JUN 02
Reported: 10 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 101620626

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
06096-1	MPT-365-S15-04	06-04-02/12:20
06096-2	MPT-365-S14-04	06-04-02/12:15
06096-3	MPT-365-S13-04	06-04-02/12:10
06096-4	MPT-365-S12-04	06-04-02/12:05
06096-5	MPT-365-S11-04	06-04-02/12:00

PARAMETER	06096-1	06096-2	06096-3	06096-4	06096-5
Petroleum Hydrocarbons (FL-PRO)					
Petroleum Range Organics (FL-PRO), mg/kg dw	<2.5	<2.5	99	<2.5	300J2
Surrogate - o-Terphenyl	77 %	62 %	72 %	68 %	81 %
Surrogate - Nonatriacontane (C39)	80 %	60 %	67 %	111 %	41 %J2
Dilution Factor	1	1	1	1	1
Prep Date	06.05.02	06.05.02	06.05.02	06.05.02	06.05.02
Prep Time	11:35	11:35	11:35	11:35	11:35
Analysis Date	06.06.02	06.06.02	06.06.02	06.06.02	06.06.02
Analysis Time	09:31	09:38	09:46	09:54	10:16
Batch ID	FLS134	FLS134	FLS134	FLS134	FLS134
Prep Method	3550B	3550B	3550B	3550B	3550B
Analyst	KA	KA	KA	KA	KA
Quantitation Factor	1	1	1	1	1
Percent Solids	89	90	94	86	96

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06096
Received: 05 JUN 02
Reported: 10 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 101620626

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06096-11	Matrix Spike % Recovery	
06096-12	Matrix Spike Duplicate % Recovery	
06096-13	Precision (%RPD) MS/MSD	
06096-14	MS/MSD Accuracy Advisory Limit (%R)	
06096-15	MS/MSD Precision Advisory Limit (%RPD)	

PARAMETER	06096-11	06096-12	06096-13	06096-14	06096-15
Petroleum Hydrocarbons (FL-PRO)					
Petroleum Range Organics (FL-PRO), %	58 %	62 %	7	62-204	30
Surrogate - o-Terphenyl	72 %	66 %	---	---	---
Surrogate - Nonatriacontane (C39)	171 %	91 %	---	---	---
Batch ID	FLS134	FLS134	FLS134	FLS134	FLS134

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.
Data from any samples that do not meet client, federal, or state sample acceptance criteria (collection, preservation, or holding time) will be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF).

Lance Larson, Project Manager

Final Page Of Report

SEVERN TRENT SERVICES

STL Pensacola

STL Pensacola Data Qualifiers for Final Report

B	The analyte was detected in the associated method blank and in the client's sample.
C	The compound has been quantitated against a one point calibration.
D	Recovery is not calculable due to dilution.
E	Estimated value because the analyte concentration exceeds the upper calibration range of the instrument or method.
I	Estimated value because the analyte concentration is less than the lower calibration range of the instrument but is at the method detection limit or greater than the method detection limit.
H	Sample and/or duplicate is below 5 X (times) the STL Reporting Limit and the absolute difference between the results exceeds the STL Reporting Limit.
J1	A sample surrogate or an LCS target compound recovered above the upper control limit (UCL). Compounds qualified with a J1 may be biased high.
J2	A sample surrogate or an LCS target compound recovered outside the lower control limit (LCL). Compounds qualified with a J2 may be biased low.
M1	A matrix effect was present.
M2	The MS and/or MSD %R or RPD was outside upper or lower control limits; not necessarily due to matrix effect.
N/C	Not Calculable; Sample spiked is > 4X spike concentration (may also use this flag in place of negative numbers).
R1	Internal standard area exceeds the acceptance criteria
R2	Calibration verification exceeds the acceptance criteria.
S1	The Method of Standard Additions (MSA) has been performed on this sample.
T	Second-column or detector confirmation exceeded the SW-846 criteria of 40% RPD for this compound.
TIC	The compound is not included in the initial calibration curve. It is searched for qualitatively or as a Tentatively Identified Compound.
U	The analyte was not detected at or above the MDL or the RL, whichever is entered next to the "U" value.
W	Post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is less than 50% spike absorbance.

When the laboratory receives a sample that does not meet EPA requirements for sample collection, preservation or holding time, the laboratory is required to reject the samples. The client must be notified and asked whether the lab should proceed with analysis. Data from any samples that do not meet sample acceptance criteria (collection, preservation and holding time), must be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF) in an unambiguous manner clearly defining the nature and substance of the variation. NPDES samples from North Carolina that do not meet EPA requirements for sample collection, preservation or holding time are non-reportable for NPDES compliance monitoring.

Abbreviations

ND	Not Detected at or above the STL Pensacola reporting limit (RL)
NS	Not Submitted
NA	Not Applicable
MDL	STL Pensacola Method Detection Limit
RL	STL Pensacola Reporting Limit
NoMS	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or duplicate (MSD)

Florida Projects Inorganic/Organic

Refer to FL DEP 62-160.700(7); Table 7 Data Qualifier Codes. FL DEP Rule 62-160.670(1)(h) states that laboratories shall include the analytical result for each analysis with applicable data qualifiers. FL DEP Rule 62-160.700(7), Table 7 lists the FL DEP data qualifiers. FL DEP Rule 62-160.700(3), Table 3 lists the Florida sites which require data qualifiers.

AFCEE QAPP Projects

Refer to AFCEE QAPP for appropriate data qualifiers (AFCEE QAPP Version will be specified by client for the project).

Arizona DEQ Projects

Any qualified data submitted to Arizona DEQ (ADEQ) after January 1, 2001 must be designated using the Arizona Data Qualifiers as developed by the Arizona ELAC technical subcommittee. Refer to the ADEQ qualifier list.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers. CLP SOW to be followed must be specified to client.

3355 McLemore Drive • Pensacola, FL 32514 • Tel: 850 474 1001 • Fax: 850 478 2671 • www.stl-inc.com

STL Pensacola is a part of Severn Trent Laboratories, Inc.

STL PENSACOLA
Certifications, Memberships & Affiliations

Alabama Department of Environmental Management, Laboratory ID No. 40150 (Drinking Water by Reciprocity with FL), expires 06/30/02

Arizona Department of Health Services, Lab ID No. AZ0589 (Hazardous Waste & Wastewater), expires 01/11/03

Arkansas Department of Pollution Control and Ecology, (No Laboratory ID No. assigned by state) (Environmental), expires 02/20/03

California Department of Health Services, NELAP Laboratory ID No. 01128CA (Hazardous Waste and Wastewater), expires 03/31/02

Connecticut Department of Health Services, Connecticut Lab Approval No. PH-0697 (D W, H W and Wastewater), expires 09/30/03

Florida DOH, NELAP Laboratory ID No. E81010 (Drinking Water, Hazardous Waste and Wastewater), expires 06/30/02

Florida DEP/DOH CompQAP # 980156

Kansas Department of Health & Environment, NELAP Laboratory ID No. E10253 (Wastewater and Hazardous Waste), expires 10/31/02

Kentucky NR&EPC, Laboratory ID No. 90043 (Drinking Water), expires 12/31/02.

Louisiana DEQ, LELAP, NELAP Laboratory ID No. 02075, Agency Interest ID 30748 (Environmental, expires 6/30/02)

Maryland DH&MH Laboratory ID No. 233 (Drinking Water by Reciprocity with Florida), expires 09/30/02

Massachusetts DEP, Laboratory ID No. M-FL094 (Wastewater), expires 06/30/02

Michigan Bureau of E&OccH, Laboratory ID No.9912 (Drinking Water by Reciprocity with Florida), expires 06/30/02

New Hampshire DES ELAP, NELAP Laboratory ID No. 250501 (Wastewater), expires 08/16/02

New Jersey DEP&E, NELAP Laboratory ID No. FL006 (Wastewater and Hazardous Waster), expires 06/30/02.

New York State Department of Health, NELAP Laboratory ID No. 11503 (WW and Solids/Hazardous Waste), expires 03/31/02

North Carolina DENR, Laboratory ID No. 314 (Hazardous Waste and Wastewater), expires 12/31/02.

North Dakota DH&Consol Labs, Laboratory ID No. R-108 Wastewater and Hazardous Waste by Reciprocity with Florida), expires 06/30/02

Oklahoma Department of Environmental Quality, Laboratory ID No. 9810 (Hazardous Waste and Wastewater), expires 08/31/02

Pennsylvania Department of Environmental Resources, NELAP Laboratory ID No. 68-467 (Drinking Water & Wastewater), expires 12/01/02

South Carolina DH&EC, Laboratory ID No. 96026 (Wastewater & Solids/Hazardous Waste by Reciprocity with FL), expires 06/30/02

Tennessee Department of Health & Environment, Laboratory ID No. 02907 (Drinking Water), expires 08/03/04

Virginia Department of General Services, Laboratory ID No. 00008 (Drinking Water by Reciprocity with FL), expires 06/30/02

Washington Department of Ecology, Laboratory ID No. C282 (Hazardous Waste and Wastewater), expires 09/14/02

West Virginia DOE, Office of Water Resources, Laboratory ID No. 136 (Haz Waste and Wastewater), expires 04/30/02.

American Industrial Hygiene Association (AIHA) Accredited Laboratory, Laboratory ID No. 100704, expires April 1, 2004. Participant in AIHA sponsored Laboratory PAT Rounds

EPA ICR (Information Collection Rule) Approved Laboratory, Laboratory ID No. ICRFL031

Naval Facilities Engineering Services Center (NFESC), expires July 5, 2002.

United States Army Corps. of Engineers (USACE), MRD, expires July 5, 2002.

STL Pensacola also has a foreign soil permit to accept soils from locations other than the continental United States. Permit No. S-37599

certlist\condcert.lst revised 05/14/2002

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06183
Received: 07 JUN 02
Reported: 12 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 165820625

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
06183-1	MPT-365-IDW	06-06-02/12:00

PARAMETER	06183-1
Metals (6010B)	
Arsenic, mg/kg dw	1.3
Cadmium, mg/kg dw	<0.46
Chromium, mg/kg dw	5.3
Lead, mg/kg dw	100
Dilution Factor	1
Prep Date	06.10.02
Prep Time	10:50
Analysis Date	06.10.02
Analysis Time	18:47
Batch ID	PS110
Prep Method	3050B
Analyst	GSP
Percent Solids	89

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06183
Received: 07 JUN 02
Reported: 12 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 165820625

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183-2	Method Blank	
06183-3	Spike Amount Added, LCS/LCSD	
06183-4	Lab Control Standard % Recovery	
06183-5	LCS Accuracy Control Limit (%R)	
06183-6	Spike Amount Added, MS	

PARAMETER	06183-2	06183-3	06183-4	06183-5	06183-6
Metals (6010B)					
Arsenic, mg/kg dw	<0.50	132.00	100 %	98.2-166.0	108.932
Cadmium, mg/kg dw	<0.50	51.50	103 %	39.7-63.3	54.466
Chromium, mg/kg dw	<0.50	142.00	113 %	113-170	108.93
Lead, mg/kg dw	<0.50	52.90	122 %	39.6-66.2	108.93
Dilution Factor	1	---	1	---	---
Prep Date	06.10.02	---	06.10.02	---	---
Prep Time	10:50	---	10:50	---	---
Analysis Date	06.10.02	---	06.10.02	---	---
Analysis Time	17:51	---	17:57	---	---
Batch ID	PS110	PS110	PS110	PS110	PS110
Prep Method	3050B	---	3050B	---	---
Analyst	GSP	---	GSP	---	---

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06183
Received: 07 JUN 02
Reported: 12 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 165820625

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183-7	Matrix Spike % Recovery	
06183-12	Spike Amount Added, MSD	
06183-8	Matrix Spike Duplicate % Recovery	
06183-9	Precision (%RPD) MS/MSD	
06183-10	MS/MSD Accuracy Advisory Limit (%R)	

PARAMETER	06183-7	06183-12	06183-8	06183-9	06183-10
Metals (6010B)					
Arsenic, %	98 %	106.838	98 %	2	75-125
Cadmium, %	98 %	53.419	98 %	2	75-125
Chromium, %	101 %	106.84	101 %	2	75-125
Lead, %	102 %	106.84	104 %	0	75-125
Dilution Factor	1	---	1	---	---
Prep Date	06.10.02	---	06.10.02	---	---
Prep Time	10:50	---	10:50	---	---
Analysis Date	06.10.02	---	06.10.02	---	---
Analysis Time	18:24	---	18:30	---	---
Batch ID	PS110	PS110	PS110	PS110	PS110
Prep Method	3050B	3050B	3050B	---	---
Analyst	GSP	---	GSP	---	---

SEVERN TRENT SERVICES

STL Pensacola
LOG NO: C2-06183
Received: 07 JUN 02
Reported: 12 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 165820625

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183-11	MS/MSD Precision Advisory Limit (%RPD)	

PARAMETER	06183-11
Metals (6010B)	
Arsenic, mg/kg dw	20
Cadmium, mg/kg dw	20
Chromium, mg/kg dw	20
Lead, mg/kg dw	20
Batch ID	PS110

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.
Data from any samples that do not meet client, federal, or state sample acceptance criteria (collection, preservation, or holding time) will be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF).

Lance Larson, Project Manager

Final Page Of Report

SEVERN TRENT SERVICES

STL Pensacola

REMIT TO: W4305 SEVERN TRENT LABORATORIES,INC. P.O. Box 7777, Philadelphia, PA 19175-4305

Client PO.No.: N2814-6402
Req. No: N2814JR00SA125
Project: CTO-176, BLDG. 365

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Invoice No: 400-13364
Invoice Amount: $150.00
Invoice Date: 20 JUN 2002

Terms: Net 30 Days
Federal Tax ID NO: 23-2919996
CODE: B&R-PITT-PA-C-30LL-3752

LOG NO: C206183A

INVOICE

ITEM	SAMPLE IDENTIFICATION	MTRX	QTY	CAT NO	ANALYSIS	UNIT PRICE	PRICE/SAMP	TOTAL
1	MPT-365-IDW	SS	1		RCRA Metals in TCLP Extract	$40.00	$90.00	90.00
					TCLP extraction - non-volatile	$50.00		
2	Method Blank	QC-S	11		RCRA Metals in TCLP Extract			
	Spike Amount Added,	QC-S						
	LCS/LCSD	QC-S						
	Lab Control Standard %	QC-S						
	Recovery	QC-S						
	LCS Accuracy Control	QC-S						
	Limit (%R)	QC-S						
	Spike Amount Added, MS	QC-S						
	Matrix Spike % Recovery	QC-S						
	Spike Amount Added, MSD	QC-S						
	Matrix Spike Duplicate	QC-S						
	% Recovery							
	Precision (%RPD)							
	MS/MSD							
	MS/MSD Accuracy							
	Advisory Limit (%R)							
	MS/MSD Precision							
	Advisory Limit (%RPD)							

INVOICE CONTINUED ON PAGE 2

SEVERN TRENT SERVICES

STL Pensacola

REMIT TO: W4305 SEVERN TRENT LABORATORIES,INC. P.O. Box 7777, Philadelphia, PA 19175-4305

Client PO.No.: N2814-6402
Req. No: N2814JR00SA125
Project: CTO-176, BLDG. 365

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Invoice No: 400-13364
Invoice Amount: $150.00
Invoice Date: 20 JUN 2002

Terms: Net 30 Days
Federal Tax ID NO: 23-2919996
CODE: B&R-PITT-PA-C-30LL-3752

LOG NO: C206183A

INVOICE

ITEM	SAMPLE IDENTIFICATION	MTRX	QTY	CAT NO	ANALYSIS	UNIT PRICE	PRICE/SAMP	TOTAL
1	Other Charges				Sample Digestion Fee (	$10.00	$10.00	10.00
1	Other Charges				Rush Fee 72hr. @ 50%	$50.00	$50.00	50.00

TOTAL $150.00

REPORTED TO Mr. Mark Peterson CUSTOMER PHONE: (412) 921-8968

For Proper Credit, please show INVOICE NUMBER on your remittance.
After 30 days, service charges of 1.5% per 30 days will be applied to unpaid balance.

SEVERN TRENT SERVICES

STL Pensacola

CASE NARRATIVE

Date:	June 28, 2002
STL Order Number:	C206183A
Project Number:	CTO-176 BLDG. 365
Project Location:	N/S
CTO PM:	Mark Peterson
Methods:	TCLP Metals-6010B

STL Sample ID	*Client Sample ID*
06183A-1	MPT-365-IDW

The above listed sample was received at the lab in good condition on 7-Jun-02 at a temperature of three degrees C.

TCLP analysis not listed on COC was performed per client request from Alan Pate received 13-Jun-02.

No problems were encountered during the analysis of this sample.

Lance W. Larson
STL Pensacola Project Manager

SEVERN TRENT SERVICES

STL Pensacola

LOG NO: C2-06183A
Received: 07 JUN 02
Reported: 20 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 110320620

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
06183A-1	MPT-365-IDW	06-06-02/12:00

PARAMETER	06183A-1
RCRA Metals in TCLP Extract (6010B)	
Arsenic (TCLP), mg/l	<0.025
Cadmium (TCLP), mg/l	<0.025
Chromium (TCLP), mg/l	<0.025
Lead (TCLP), mg/l	0.062
Dilution Factor	5
Prep Date	06.18.02
Prep Time	12:55
Analysis Date	06.18.02
Batch ID	PT041
Prep Method	3010A
Analyst	GSP
Quantitation Factor	1
TCLP extraction - non-volatile (1311)	
Phases	Complete

SEVERN TRENT SERVICES

STL Pensacola

LOG NO: C2-06183A
Received: 07 JUN 02
Reported: 20 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 144520628

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183A-2	Method Blank	
06183A-3	Spike Amount Added, LCS/LCSD	
06183A-4	Lab Control Standard % Recovery	
06183A-5	LCS Accuracy Control Limit (%R)	
06183A-6	Spike Amount Added, MS	

PARAMETER	06183A-2	06183A-3	06183A-4	06183A-5	06183A-6
RCRA Metals in TCLP Extract (6010B)					
Arsenic (TCLP), mg/l	<0.025	1.00	106 %	80-120	1.00
Cadmium (TCLP), mg/l	<0.025	0.50	107 %	80-120	0.500
Chromium (TCLP), mg/l	<0.025	1.00	105 %	80-120	1.00
Lead (TCLP), mg/l	<0.025	1.00	107 %	80-120	1.00
Dilution Factor	5	---	---	---	---
Prep Date	06.18.02	---	---	---	---
Prep Time	12:55	00:00	---	00:00	00:00
Analysis Date	06.18.02	---	---	---	---
Batch ID	PT041	PT041	PT041	PT041	PT041
Prep Method	3010A	---	3010A	---	---
Analyst	GSP	---	---	---	---
Quantitation Factor	1	---	---	---	---

SEVERN TRENT SERVICES

STL Pensacola

LOG NO: C2-06183A
Received: 07 JUN 02
Reported: 20 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 110320620

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183A-7	Matrix Spike % Recovery	
06183A-8	Spike Amount Added, MSD	
06183A-9	Matrix Spike Duplicate % Recovery	
06183A-10	Precision (%RPD) MS/MSD	
06183A-11	MS/MSD Accuracy Advisory Limit (%R)	

PARAMETER	06183A-7	06183A-8	06183A-9	06183A-10	06183A-11
RCRA Metals in TCLP Extract (6010B)					
Arsenic (TCLP), %	110 %	1.00	108 %	2	75-125
Cadmium (TCLP), %	109 %	0.500	108 %	1	75-125
Chromium (TCLP), %	106 %	1.00	105 %	1	75-125
Lead (TCLP), %	107 %	1.00	108 %	0	75-125
Dilution Factor	5	---	5	---	---
Prep Date	06.18.02	---	06.18.02	---	---
Prep Time	12:55	00:00	12:55	00:00	00:00
Analysis Date	06.18.02	---	06.18.02	---	---
Analysis Time	14:37	---	14:43	---	---
Batch ID	PT041	PT041	PT041	PT041	PT041
Prep Method	3010A	---	3010A	---	---
Analyst	GSP	---	GSP	---	---

SEVERN TRENT SERVICES

STL Pensacola

LOG NO: C2-06183A
Received: 07 JUN 02
Reported: 20 JUN 02

Mr. Mark Peterson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Client PO. No.: N2814-6402

Requisition: N2814JR00SA125

Project: CTO-176, BLDG. 365
Sampled By: Client
Code: 110320620

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
06183A-12	MS/MSD Precision Advisory Limit (%RPD)	

PARAMETER	06183A-12
RCRA Metals in TCLP Extract (6010B)	
Arsenic (TCLP), mg/l	20
Cadmium (TCLP), mg/l	20
Chromium (TCLP), mg/l	20
Lead (TCLP), mg/l	20
Prep Time	00:00
Batch ID	PT041

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.
Data from any samples that do not meet client, federal, or state sample acceptance criteria (collection, preservation, or holding time) will be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF).

Lance Larson, Project Manager

Final Page Of Report